

DETAILED ACTION

1. The examiner acknowledges the receipt of the amendment filed August 19, 2009. Applicants' amendment is supported by the specification (page 10, line 11-17). Claims 1-7 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoichi et al. (EP 1 260 278 A2) in view of Poole et al. (US 4,945,003).

1. (currently amended) An ultraviolet-curing resin composition comprising (a) 5 to 35 parts by mass of a chlorinated polyolefin with a chlorine content of 15 to 40 mass %, (b) 15 to 60 parts by mass of an alicyclic hydrocarbon mono(meth)acrylate, and (c) 5 to 80 parts by mass of a polypropylene glycol di(meth)acrylate;

and further containing, per 100 parts by mass of the total amount of components (a), (b) and (c), (d) 0 to 1100 parts by mass of an aliphatic hydrocarbon di(meth)acrylate and (e) 0 to 600 parts by mass of a polyfunctional monomer having 3 to 6 (meth)acryloyl groups in its molecule;

and further containing, per 100 parts by mass of the total amount of components (b), (c), (d) and (e), (f) 1 to 15 parts by mass of a photoinitiator{[.]}.

~~and further containing, per 100 parts by mass of component (a), 1 to 10 parts by mass of an epoxy compound.~~

Yoichi et al. (abstract) disclose a coating method involving a UV-curable coating to form an under coating film comprising alicyclic hydrocarbon mono(meth)acrylate such as isobornyl (meth)acrylate. Yoichi et al. (page 4, 0021) clearly disclose an amount of 30 to 90 weight percent of alicyclic hydrocarbon mono(meth)acrylate to be used.

Regarding the claimed polypropylene glycol di(meth)acrylate, Yoichi et al. (page 5, 0032, line 1-3) clearly teach the use of polyol (such as polypropylene glycol) capped with (meth)acrylic acid. Yoichi et al. (page 5, 0032, line 5) also teach the use of di(meth)acrylate formed with 1,6-hexanediol. The amount of the polypropylene glycol di(meth)acrylate to be used in the disclosed invention is clearly taught in Yoichi et al. (page 6, 0046), Which teach an amount of 30 to 80 weight percent.

Regarding the claimed chlorinated polyolefins, Yoichi et al. (page 7, 0053) clearly teach the use of 0.05 to 10 weight percent of chlorinated polyolefins, which can be maleic anhydride grafted at a loading of 0.01 to 1 mol/L. Since the molecular weight of maleic anhydride is about five times the molecular weight of an olefin unit such as ethylene or propylene, the examiner has a reasonable basis that the claimed amount of carboxylic acid content of claim 2 is inherently possessed in the chlorinated polyolefins of Yoichi et al.

Yoichi et al. (page 7, 0050) disclose the use of 2-15 weight percent of photoinitiators.

Regarding the claimed "1 to 10 parts by mass of an epoxy compound", Yoichi et al. (page 10, Table 1) clearly disclose examples comprising 4 parts of an epoxy compound.

Table 1

						IR														Constr. Gc		
						1	2	3	4	5	6	7	8	9	10	11	12	13	14	1	2	3
Acrylic resin	1	BDMA/MAA/ST=10/91/20	14108	131	0.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	2	BDMA/MAA/ST=10/92/20	16400	136	0.7	40	—	—	—	—	—	—	—	—	—	—	30	—	—	—	—	—
	3	BDMA/MAA/ST=10/93/20	16300	135	0.4	—	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	4	BDMA/MAA/ST=10/91/20	16300	133	0.1	—	—	40	40	40	40	40	40	30	50	—	—	—	—	—	—	40
	5	BDMA/MAA/ST=10/12/10	16100	132	7.5	—	—	—	—	—	—	—	—	—	—	—	60	—	—	—	—	—
	6	BDMA/1,4-cyclohexadiene/MAA/ST=65/5/30/20	15200	135	0.1	—	—	—	—	—	—	—	—	—	—	—	—	40	—	—	—	—
	7	BDMA/1,4-cyclohexadiene/MAA/ST=65/5/30/20	16200	133	0.2	—	—	—	—	—	—	—	—	—	—	—	—	—	40	—	—	—
	8	BDMA/MAA/ST=40/25/20	15700	127	0.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	40
BDMA monomer			130	7.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Composition having at least two (meth)acrylic groups within the molecule	M=402 (functional)				—	—	—	80	—	—	—	—	—	—	—	—	40	70	—	—	—	80
	M=408 (functional)				80	80	60	—	20	30	30	20	10	50	—	—	60	60	70	—	60	—
	M=508 (MPMA, Terephthalate)				—	—	—	—	40	—	—	—	—	—	—	—	—	—	—	—	—	—
	M=520 (TPGDA, Ethacrynic)				—	—	—	—	—	40	—	—	—	—	—	—	—	—	—	—	—	—
	M=1600 (functional)				—	—	—	—	—	—	40	—	—	—	—	—	—	—	—	—	—	—
Open Ester TSPA (functional)					—	—	—	—	—	—	—	40	—	—	—	—	—	—	—	—	—	—
Thermoplastic elastomer	Benzophenone				0	0	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	2-Ethylhexadecanoic acid				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Additive	UV-absorber (diphenyl ketone)				0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Methyl P-117 (surface modifier)				0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Regarding the claimed articles of claims 3-7, the recited "paint", "ink", "adhesive", "sealing agent", "primer" are merely different functional languages for the composition of claim 1, because the claims fails to disclose any ingredients that are unique to the intended applications or articles being claimed. Therefore, in view of the substantially identical composition disclosed in Yoichi et al. and as claimed, the examiner has a reasonable basis that the claimed "paint", "ink", "adhesive", "sealing agent", "primer" have adequately been met by Yoichi et al.

The difference between Yoichi et al. and the invention as claimed is that Yoichi et al. do not teach the chlorine content as claimed.

However, Poole et al. (abstract) teach a UV curable coating composition comprising polymerizable (meth)acrylates and maleic anhydride grafted chlorinated polyolefins with a chlorine content of about 5 to 25 weight percent. In view of substantially identical endeavors of developing UV curable coating composition comprising chlorinated polyolefins that have been grafted with maleic anhydride, it would have been obvious to one of ordinary skill in art to incorporate the chlorine content teachings of Poole et al. into Yoichi et al. to obtain the invention as claimed.

Applicant's arguments filed August 19, 2009 have been fully considered but they are not persuasive. Applicants argue that the instant claims are allowable because Yoichi et al. do not teach a composition comprising the claimed amount of epoxy compound. However, Yoichi et al. (page 10, Table 1) clearly disclose examples comprising 4 parts of an epoxy compound.

Regarding applicants' argument that the epoxy compounds disclosed in Yoichi et al. are not epoxy compounds because they do not have the functionality of the epoxy compounds being claimed, applicants must recognize that the claims as written do not support any restriction on how an epoxy compound should be used or functioned.

Regarding applicants' argument that Yoichi et al. do not indicate the chlorine content on the chlorinated polyolefin, applicants must recognize that Poole et al. (abstract) clearly teach a UV curable coating composition comprising polymerizable (meth)acrylates and maleic anhydride grafted chlorinated polyolefins with a chlorine content of about 5 to 25 weight percent. In view of substantially identical endeavors of developing UV curable coating composition comprising chlorinated polyolefins that have

been grafted with maleic anhydride, it would have been obvious to one of ordinary skill in art to incorporate the chlorine content teachings of Poole et al. into Yoichi et al. to obtain the invention as claimed.

Regarding applicants' argument that Yoichi et al. do not recite any ingredients that are unique to the intended application of claims 3-7, applicants fail to recognize that claims 3-7 not require Yoichi et al. do disclose any ingredients that are unique to the intended application of claims 3-7. Therefore, the rationale set forth for the rejection of claims 3-7 is adequate. Applicants must recognize that there is no restriction on how the composition as disclosed in Yoichi et al. can be used.

In view of the reasons set forth above, the rejection of claims 1-7 is maintained.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM K. CHEUNG whose telephone number is (571)272-1097. The examiner can normally be reached on Monday-Friday 9:00AM to 2:00PM; 4:00PM to 8:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David WU can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William K Cheung/
Primary Examiner, Art Unit 1796

William K. Cheung, Ph. D.
Primary Examiner
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